

ASTROPHYSICS SEMINAR

日時	2004年2月12日(木) 11:00am – 12:35pm
場所	3号館 376室
講師	Matthias Liebendörfer (CITA, Univ. of Toronto)
題目	Neutrino Emission in Core Collapse Supernovae

講演要旨

Based on models implementing state-of-the-art general relativistic Boltzmann neutrino transport in spherical symmetry, I describe the expected thermodynamical conditions of nuclear matter in stellar core collapse and postbounce evolution. I try to disentangle different modes of neutrino emission, which are characterized by the emission rate, the diffusion time scale, or occur in adaptive equilibrium with the hydrodynamical evolution. In the comparison of simulations issued from a broad range of stellar progenitors between 13 and 40 solar masses I discuss differences and similarities in the early neutrino signal. Contradictory to observation, most simulations that adequately resolve the neutrino energy spectrum do not predict a supernova explosion in this mass range. Where are the models most sensitive to changes and how do conditions of matter change when the models are artificially enforced to explode?

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